

CLAIMS

I claim:

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Q3 A method for assembling first and second composite components, the method comprising:

- (a) providing a woven preform having a base and a pair of spaced-apart legs extending from the base;
- (b) infusing the preform with resin, and adhering the base of the preform to the first component; then
- (c) inserting a sizing tool between the legs and curing the resin while the tool is located between the legs to define a slot; then
- (d) removing the tool and applying an adhesive into the slot; then
- (e) inserting the second component into the slot, the adhesive in the slot adhering at least one surface of the second component to at least one inner surface of the slot for retaining the second component within the slot, the second component having a smaller width than the tool.

2. The method of claim 1, wherein:

step (b) further comprises locating a film adhesive between the base of the preform and the first component.

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3. The method of claim 1, wherein:

step (c) further comprises locating a peel ply within the slot, the peel ply separating the tool and the preform and being removable from the slot after the tool is removed.

4. The method of claim 1, further comprising:

coating the tool with a non-stick material to prevent adhesion of the tool to the legs and to reduce the force needed to remove the tool after curing of the preform.

5. The method of claim 1, wherein:

step (c) further comprises placing at least semi-rigid over-presses against outer surfaces of the preform while curing the preform for distributing a force across the preform.

6. The method of claim 1, further comprising:

adhering an over-wrap ply to the preform and to the adhesive film.

7. The method of claim 1, wherein:

steps (c) further comprises forming the legs to be perpendicular to the base.

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8. The method of claim 1, wherein:

steps (c) further comprises forming the legs to be parallel to each other.

9. The method of claim 1, wherein:

step (c) further comprises vacuum bagging the components and preform to ensure proper sizing and bonding.

10. The method of claim 1, wherein:

the tool has a greater width than the second component, providing a clearance for the adhesive in the slot.

11. The method of claim 1, wherein:

step (d) further comprises coating inside surfaces of the legs with the adhesive.

12. A method for assembling first and second composite components, the method comprising:

(a) providing a three-dimensional, woven preform having a base and a pair of spaced-apart, generally-parallel legs extending from the base; then

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(b) infusing the preform with resin, and adhering at least one surface of the preform to at least one surface of the first component using a film adhesive; then

(c) inserting a sizing tool between the legs and curing the resin and film adhesive while the tool is located between the legs to define a slot; then

(d) removing the tool and applying an adhesive into the slot, the adhesive coating inside surfaces of the legs; and

(e) inserting the second component into the slot, the adhesive adhering at least one surface of the second component to at least one inner surface of the slot for retaining the second component within the slot, the second component having a smaller width than the tool.

13. The method of claim 12, further comprising:

step (c) comprises locating a peel ply within the slot, the peel ply being between the tool and the preform and being removable from the slot after the tool is removed.

14. The method of claim 12, further comprising:

coating the tool with a non-stick material to reduce the force needed to remove tool after curing of the preform.

15. The method of claim 12, wherein:

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step (c) further comprises placing at least semi-rigid over-presses against outer surfaces of the preform while curing the preform for distributing a force across the preform.

16. The method of claim 12, further comprising:

adhering an over-wrap ply to the preform and to the adhesive film.

17. The method of claim 12, wherein:

step (c) further comprises vacuum bagging the components and preform to ensure proper sizing and bonding.

18. A method for assembling first and second composite components, the method comprising:

(a) providing a three-dimensional, woven preform having a base and a pair of spaced-apart parallel legs extending from the base;

(b) infusing the preform with resin, and adhering at least one surface of the preform to at least one surface of the first component using a film adhesive; then

(c) inserting a peel ply between the legs and inserting a tool within the peel ply between the legs; then

curing the resin and film adhesive while the tool is located between the legs to define a clevis, the legs being perpendicular to the base, semi-rigid over-presses being placed against outer surfaces of the preform while curing the preform for distributing a force across the preform, the components and preform being enclosed in a vacuum bag to ensure proper sizing and bonding; then

(e) removing the tool, removing the peel ply, and applying an adhesive into the clevis;
and

(f) inserting the second component into the clevis, the adhesive adhering at least one surface of the second component to at least one inner surface of the clevis for retaining the second component within the clevis, the second component having a smaller width than the tool..